

Computerized System Provides Access To Databases on Materials Properties

You're an engineer, and you've designed the device that will do the job in the best way you can imagine. The blueprints look just great, but what do you *make* it from? How do you make sure at the outset that the materials you use will stand up to the battering and general mayhem that you expect it to experience in the real world?

Recently, Sandia's materials research organization (1800) and its counterparts at laboratories around the nation cut the metaphorical ribbon on a computerized system that is designed to answer these perplexing questions. There's a touch of irony to its acronym — MIST, for Materials Information for Science and Technology — for it is intended to penetrate the fog that now engulfs the distribution of technical information about materials properties.

Mark Davis, manager of Metallurgy Department 1830, explains that Sandia has been developing the MIST system with the aid of Lawrence Berkeley Laboratory (LBL) and Stanford University (Stanford developed and maintained the original computer database management system used for MIST).

"Basically," Mark says, "the idea is get the database developed to the point where it will give the user access to a variety of different databases."

MIST's Founding Father

Mark refers to Sandian Clyde Northrup — now on loan to the Strategic Defense Initiative Organization (SDIO) — as the "founding father" of MIST. Clyde became involved in the project in 1981, when he was president of the Materials Research Society (MRS). In that capacity he took part in an international meeting at Fairfield Glades, Tenn., sponsored by the National Academy of Sciences, the National Academy of Engineering, and the National Bureau of Standards. Goal of the meeting was to identify the kinds of information that engineers and scientists are expected to need in the future — 1990s and beyond.

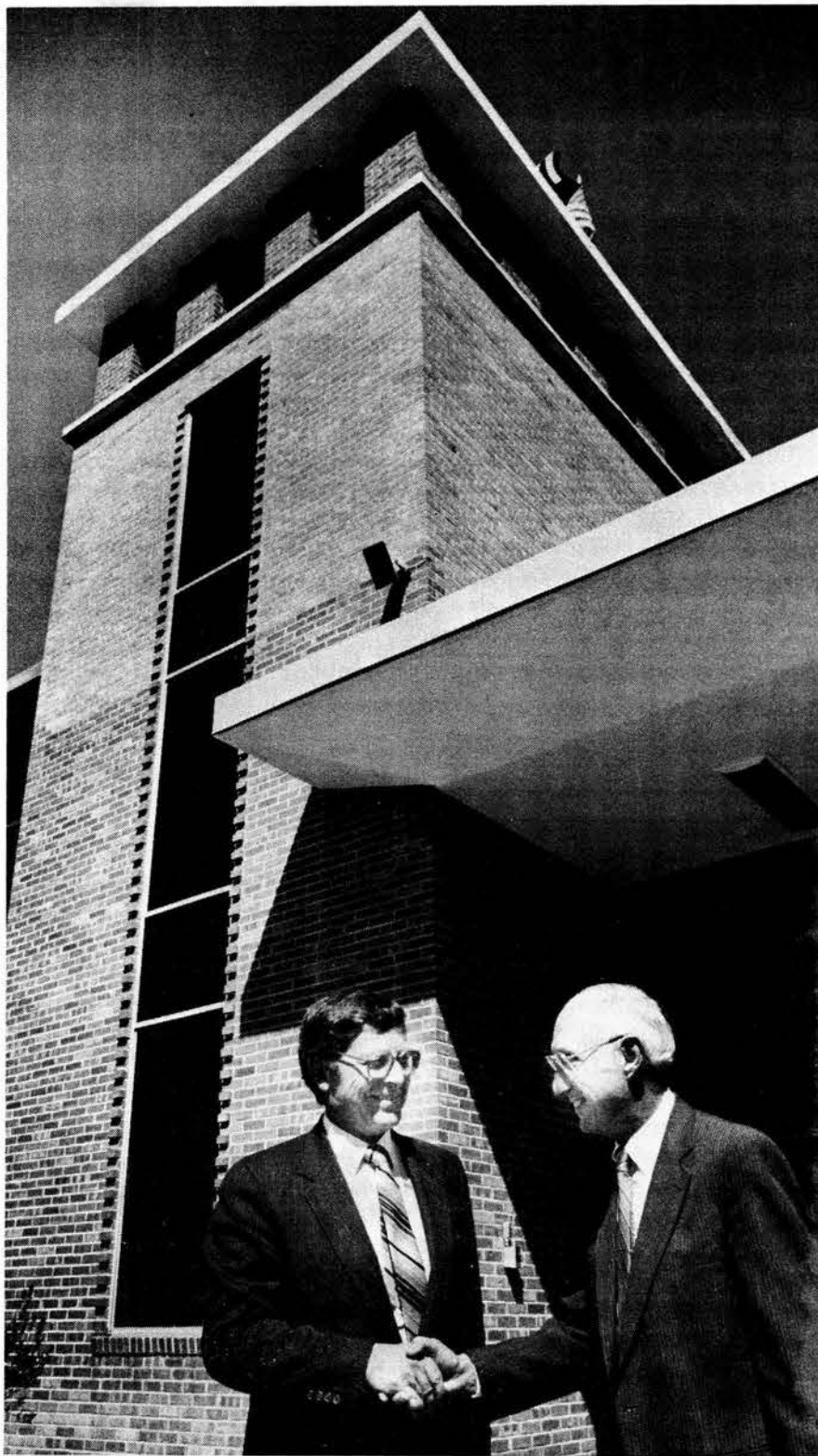
"Out of that meeting came the decision to establish three information systems on computerized materials data — one in Europe, one in Japan, and one in the U.S. — the National Materials Property Data Network," says Clyde. "There aren't really any other global materials database systems around. Instead there are a number of sources, each with specialized data such as thermal properties, mechanical properties, and optical properties of various materials, but these sources cannot share data easily."

"In other words, many different groups are beginning to collect data on different properties of different materials," continues Clyde. "The challenge for MIST is to allow the user to connect to a single Gateway computer that knows where all the materials properties information in the world is, and to do it through a single entry port — just log into the computer once."

Prototype Database

A prototype MIST database has been under development at Stanford for some time, using data selected from several of the top materials reference sources in the U.S. — specifically EPRI's computerized data on the fracture toughness properties of pressure vessel steels, DoD data on metal alloys (from MIL Handbook No. 5), and the Aerospace Materials Handbook.

(Continued on Page Five)



SENATOR PETE DOMENICI was greeted in front of Bldg. 800 by President Irwin Welber on April 14 as the Senator began a day-long series of briefings on Sandia plans and programs.



LAB NEWS

VOL. 39, NO. 8 SANDIA NATIONAL LABORATORIES APRIL 24, 1987

A Bit of 'Brinkmanship'

Technical Leadership, Not Merely Management

Bill Brinkman left his mark on Sandia. That's extremely difficult for a short-term vice-president. But Bill's two-and-a-half years as research VP were marked by continuing improvements in Sandia's research environment.

"What I'll remember most about my years at Sandia is the freedom we had to start new research projects," Bill said before he left. "Establishing the Computer Sciences and Mathematics directorate [1400] last year is one case in point. That new venture will, I think, really pay off in the long run by helping to put 1000 on the leading edges of research."

"But it also shows that Sandia is a responsive organization; it can, and does, move rather quickly into new areas," continued Bill. "That responsiveness was much greater than I had seen in previous jobs, and it was most delightful."

"I can't take credit for the many good things 1000 has accomplished in the short time I've been here," Bill went on. "But some of them were cer-

(Continued on Page Six)



WITH MOVING BOXES behind him packed for his move to Bell Labs, former Research VP Bill Brinkman shares his memories of Sandia with the LAB NEWS.

Antojitos

You Now Have One Week to master the spelling and pronunciation of our new vice-president's name. It's Indian and it's long (Melodie Owen, his administrative assistant, has authorized the Shops to work overtime on a nameplate). But it's pronounced just the way it's spelled. Time now for rehearsal: VENK-a-tesh Na-ra-ya-na-MURT-i. That last name is really a beautiful word aesthetically -- and fun to roll off your tongue. If your tongue is uncooperative, however, remember that he goes by Venky. Sure encourages you to get to know him on a first-name basis quickly, doesn't it?

While I sought, and most graciously was granted, permission to reprint his article on research management (see Page Six), Venky passed along an anecdote about his father, Duraiswami Narayanamurti. Seems the elder Narayanamurti showed up late one night at a hotel where the company he was to visit the next day was supposed to have reserved a room for him. The desk clerk, however, was adamant: no reservation for any Narayanamurti. Father then named the company and said he was sure the reservation had been made. "Oh, yes, that company called us," the desk clerk said. "But they made a reservation for a woman." "Let me see the register," said father. And there it was -- a reservation for Mary Anna Murty.

P.S. Bell Labs puts its secretaries through telephone etiquette training. And the name they use for practice is, you guessed it, Venkatesh Narayanamurti.

* * *

Official Statement of Dedication This issue of LAB NEWS is hereby dedicated to Sandia's Big 8 champions. Clyde Northrup of Oklahoma State was the conference champion discus thrower in the late 50s. And Bill Brinkman played tackle on the Missouri football team that won the Big 8 title and went to the Orange Bowl in 1960. (The Tigers got beat by Georgia 14-0.) Any direct relationship between physics and physique, Bill?.

* * *

More Northrupiana Clyde's dad, Clyde Senior, was the Northrup after whom Northrup Strip at White Sands Missile Range was named. The landing strip achieved fame on March 30, 1982, when the space shuttle Columbia landed there after high winds kept it from landing at Edwards AFB in California.

* * *

Seems Like the Appropriate Issue to end with a couple of quotes on Bell Labs and research in general: "If there's a single place that symbolizes America's scientific brilliance and high-tech ingenuity, it is Bell Laboratories. . . . But if there is a single place that symbolizes the tremendous difficulties in transforming sheer brilliance into profitable products, that place, too, is Bell Labs." (Washington Post, March 1, 1987) Finally, just to keep everything in perspective: "Basic research is what I'm doing when I don't know what I'm doing." --Wernher von Braun

•BH

Freudian Slip?



Misreading the word "succeed" in his inaugural address, Gov. Clements declares: "The people of Texas want us to secede."

Wall Street Journal

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Fun & Games

Hiking — Ever try hiking and lifting weights at the same time? Great exercise. So bring your pick and shovel to the trailhead of the La Luz Trail tomorrow. The lower half of the seven-mile trail to Sandia Crest is due for a face-lift, following a long and harsh winter. Tomorrow's trail-repair project is sponsored jointly by the Forest Service and Volunteers for the Outdoors as part of a nationwide "Take Pride in America" campaign. Volunteers should wear work clothing, a hat, and gloves; bring lunch and a day's supply of water; and show up by 9 a.m. The trailhead is east of Tramway: take the turnoff for Forest Service Road 333, continue for two miles to the Juan Tabo picnic area, and follow the paved road (bearing left at the crossroads) to the La Luz parking lot.

* * *

Birdwatching — The hunt for the red-faced warbler and the acorn woodpecker is on. The Central NM Audubon Society's field trip to Water Canyon in the Magdalena Mountains near Socorro is slated for tomorrow. Bird fanciers meet tomorrow at 7 a.m. in the UNM Physics and Astronomy parking lot, north of Lomas on Yale. For more info, call Bruce Halstead tonight at 299-9397.

* * *

Bird Counting — Silver City is the main site next weekend (May 2-3) for the Spring Bird Count. The Southwestern NM Audubon Society expects that you'll be at the beak and call of avian species that occur nowhere else in the state. There's also a bonus for botanical types — wild flowers will be at their



CLARENCE FILIP (4021)

Supervisory Appointments

CLARENCE FILIP to supervisor of Financial Division 4021, effective March 1.

Clarence joined Sandia in August 1980 as an accountant in the auditing organization. He moved to the General Accounting Division six months later. In 1984, he became a member of the Budget and Financial Planning Department, where he worked as an accountant in Programmatic Support Division 141. He was appointed supervisor of Payment Processing Section 154-1 last October.

Clarence was an accountant with Yates Petroleum in Artesia before joining Sandia. He has a BA in business administration with an emphasis in accounting, and an MA in accounting; both degrees are from Eastern New Mexico University. Clarence is a CPA and a member of the American Institute of Certified Public Accountants.

He likes to fish and hunt in his spare time. Clarence and his wife Donna have two children and live in NE Albuquerque.

peak in the area. Pre-assignments for the bird count will be distributed by Ralph Fisher (1-535-2320, evenings) on Friday at WNMU's Harlan Hall. The tour meets Saturday at 7 a.m. in the parking lot of the Red Barn Restaurant. For info on dinner, breakfast, motels, and excursions call Evelyn Price at 266-4028. There's one catch: Reservations are due tomorrow.

* * *

Soccer — Middle of May to sometime in August — that's summer soccer season, time enough for 14 games after work. And so the Sandia Summer Soccer League has a call out for players (first-timers and pros are welcome), team captains, and referees. Just in case you missed it, the registration form was published in the April 21 Weekly Bulletin. (SERP will be reprinting it in its newsletter.) The same form may be used to sign up for the two teams in the Albuquerque Soccer League; these are co-sponsored by the Coronado Club. For details and encouragement, call Ken Osburn (2826) at 6-2069 or Erin Hallenburg at 4-0260.

* * *

Golf — Sandia Women's Golf Association puts it well: The group held its first nine-hole tournament of the season at the University North Course on April 11. The outcome: first low gross by Minnie Shurick, second low gross by Barbara Ford (5151); first low putts by Gretchen Gardner (0155), second low putts by Barbara Hilton; and longest drive by Eleanor Kelly (ret.). Sandy Anderson (7241) was closest to the pin.

* * *

40 Years a First At SNLL

Val Black (8184) recently passed a milestone no one else at Sandia Livermore has reached — 40 years of service. But he's not going for 41; he retires next week.

Val began his career at Los Alamos on Jan. 31, 1947 — before Sandia Corporation even existed. Then, in early 1949, a few months before the new corporation was formed under Western Electric (now AT&T Technologies), he transferred to the Sandia site at Sandia Base (now Kirtland Air Force Base) in Albuquerque with his wife and the first of their four children.

His first assignment was to do the engineering design on a new Van de Graaff accelerator that provided data essential to the design of early nuclear warheads.

Val had firsthand knowledge of nuclear weapons — he was an officer aboard a U.S. battleship off the Japanese coast when the first atomic bomb was dropped on Hiroshima. The experience gave him a special insight into the meaning of "nuclear deterrent," one he's never forgotten in his long career with Sandia.

Short-Term Tour Gets Extended

In 1962 Val came to Livermore to do some engineering for the Dominic atmospheric test series in conjunction with LLNL. It was supposed to be a six-month stint, but he found the lab staff a friendly and close-knit group and his family liked the small-town atmosphere. So, 25 years later, the Blacks are still here.

His early work involved weapons engineering for bombs dropped from planes, then nuclear testing in the South Pacific, then warheads for missiles, later SDI weapon concepts. In 1982 he was named supervisor of the Model Shops and Inspection Division.

Looking back, he reminisces about the early weapons and how they now "look like something designed and built in a blacksmith shop" as compared with the more compact high-tech versions today.

"In split seconds, scientific computers make the calculations needed for physics design, structural response, and aerodynamics," he notes. "Those

Next in Line

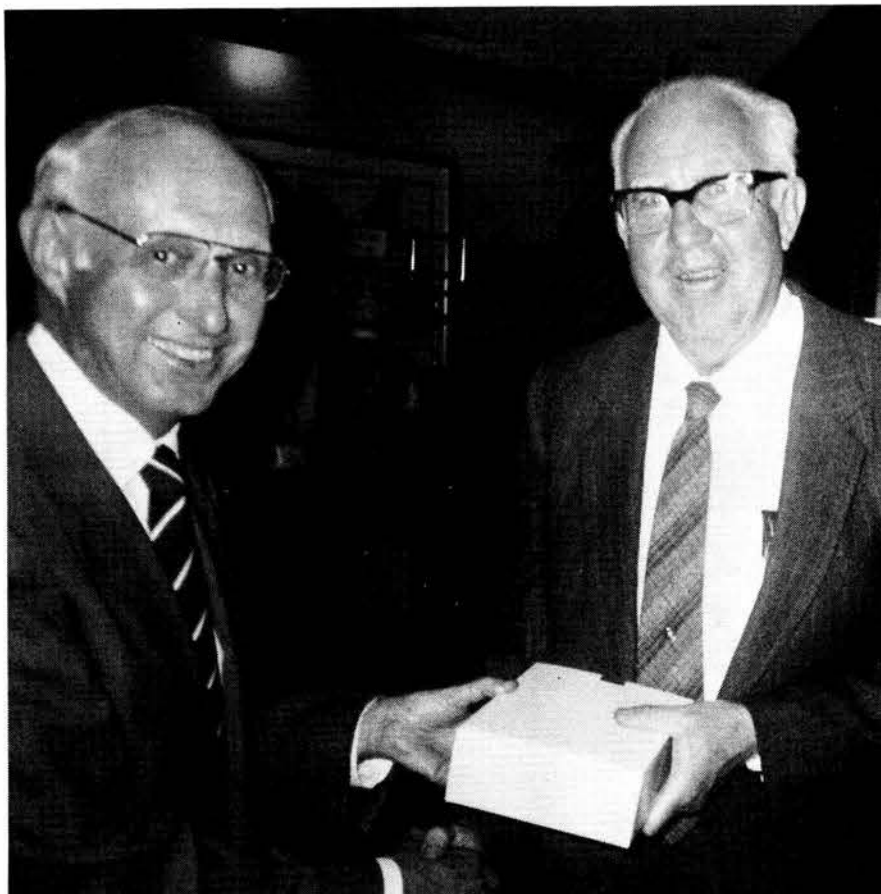
Once Val's retired, Frank Duggin (8264) assumes the SNLL lead when it comes to length of Sandia service; he hired in on June 7, 1948. Close behind him is Bob Ware (8263), who signed on exactly two weeks later. Relative newcomers are Ernie Alford (8161), April 11, 1949; George Mincks (8413), Feb. 1, 1950; and Dick Claassen (8000), March 20, 1950.

calculations used to take weeks or months, if indeed they could be made at all. Computer-controlled machine tools can now fabricate precision parts with complicated shapes that were simply impossible to make 40 years ago.

"And the whole field of printed circuit boards, component miniaturization, solid-state circuitry, and microcomputers has evolved since those first nuclear warheads were put into the arsenal," Val explains. "All of these developments have led to warheads that are smaller, safer, more reliable, and more versatile."

'Deterrence' Has Special Meaning

"People today have forgotten about the terrible war that was being fought when those first atomic bombs were dropped on Japan," Val continues. "The bloody invasion of the Japanese home islands, which was imminent when the war ended, would likely have cost many more lives, both Japanese and American, than the bombs did. They not only ended a war



FOUR DECADES of Sandia service by Val Black (8184, right) were marked with a dinner, hosted by Dick (8000) and Ruth Claassen, honoring Val and his wife. Here, Sandia President Irwin Welber congratulates Val on his years of service and presents him with a Cross pen desk set engraved "40 Years Service — Val Black."



SANDIA LIVERMORE NEWS

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LIVERMORE April retiree Dave Timmer (8182)

Fun & Games

Six Sandians from Livermore represented the Labs in the Corporate Ski Challenge last month at Alpine Ski Meadows, Lake Tahoe.

There were 127 teams in the six-day event, which included team and individual giant slalom, downhill, and steeplechase disciplines. Participants from Sandia included Kevin Schroder (8432), Howard Royer (8411), Oliver Lu (8431), Mary Claire Stoddard (8434), Len Hiles (8153), and Pat Beasley-Devonshire (8263).

According to Kevin, it's not true that Sandia won the award for having the most skiers take a spill during the competition.

sooner, but they have been an effective deterrent over these many years.

"If we ever have to use one in anger again, we will have failed," he reasons. "But we must maintain a capability sufficient to discourage Russia or any other potential aggressor from taking a chance."

Val holds two undergraduate degrees—one in mathematics from Brigham Young University, the other in mechanical engineering from the University of New Mexico, where he also did some graduate work. Retirement plans? "Start doing the many things I've been putting off until I retire and have the time."

He leaves a legacy at Sandia Livermore — his son Ken works in 8131.

Welcome to Livermore

Livermore

Cindy Anderson (8022)
Susie Cho (8022)
Craig Taylor (8412)

Alameda

David Rosenzweig (8022)

Berkeley

Kathryn Blumberg (8443)

Hayward

Herbert Myers (8264)

Modesto

Dan Bacon (8183)

Moraga

James Hutchins (8234)

Pico Rivera

Robert Kinzel (8182)

Ripon

Debra Cornella (8022)

Rowland Heights

Mark McConkie (8362)

Tracy

Barbara Allen (8022)
Josh Whaley (8347)

Binghamton, N.Y.

Hugh Keleher (8024)

Erie, Pa.

Scott Ferko (8361)

Pendleton, Ore.

George Troychak (8462)

Phoenix, Ariz.

Michael Bell (8131)

Pittsburgh, Pa.

Joseph Durant (8353)

Salt Lake City, Utah

Karen Scott (8024)

Seattle, Wash.

Walter Wapman (8163)

Urbana, Ill.

Scott Carichner (8463)

Down to Brass Tax



A Houston restaurant knocks 20 percent off its "oil barrel lunch" to make up for decreased deductibility of business meals under [the] new tax law. Cards on the tables read: "The government took it and La Colombe d'Or will give it back."

Wall Street Journal

Security Inspector Was in Right Place At Right Time

On Thursday, March 12, non-recurrent Security Inspector Mike Tachias (3435) decided to visit his uncle before he reported for work on the swing shift at 2:30 p.m. That decision undoubtedly saved the life of 15-month-old John Twiss, who lives in the neighborhood of Mike's relatives on Iron SW.

"It was around noon," Mike recalls. "I was outside my uncle's place when I heard screams inside a nearby apartment building. I started moving in that direction when a woman ran out, clutching a baby in her arms. She was able to explain that she thought her son had drowned in the bathtub; he wasn't breathing."

'Had to Keep on Trying'

Mike checked the child for vital signs, but found no pulse; as reported by the mother, the boy was not breathing. After yelling to another tenant to call the rescue squad paramedics, Mike immediately started cardiopulmonary resuscitation (CPR) on the boy. "He didn't respond for what seemed like a very long time," says Mike. "I began to worry that I'd lost him, but I knew I had to keep on trying — and somewhere along the line, I started praying a lot."

"Then I detected a very faint pulse, but John still wasn't breathing because he'd taken in so much water," Mike continues. "He was expelling the water a little at a time as I was doing CPR, and finally — maybe a minute or two after I felt the pulse — he began to pull in some air on his own. Just a little at first; he was definitely straining. But I had the feeling that the little kid was trying as hard as he could to help me along. And soon after he began breathing, his eyes began to twitch. There had been no eye movement before, so that was really an encouraging sign."

'Seemed Like Forever'

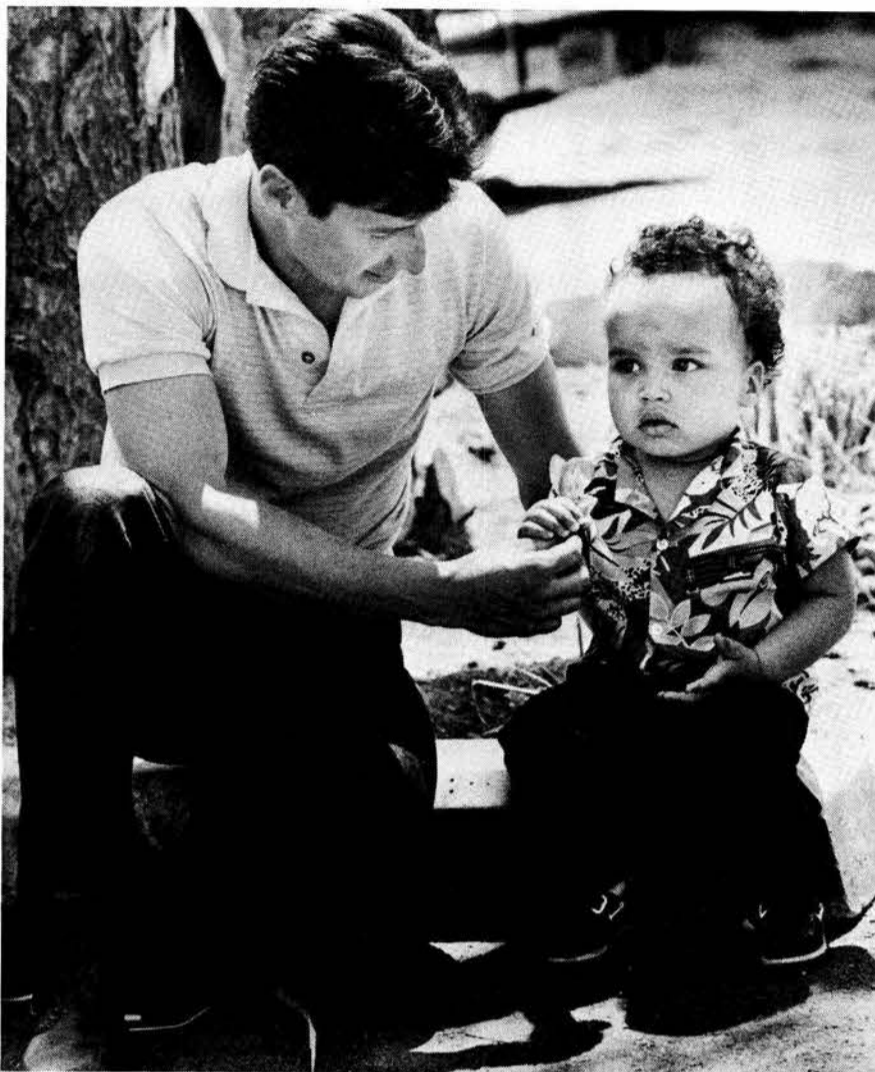
The paramedics arrived about that time and took over for Mike. "I'm sure they [the rescue people] got there within five or ten minutes," says Mike, "but it seemed like forever!"

In a heartfelt letter to Bob Wilde (3430), Tina Twiss, the child's mother, praised Mike's swift, calm reaction in a crisis situation, and said that a Presbyterian Hospital physician told her later that the boy would have died without Mike's efforts.

Mrs. Twiss wrote, "I am forever grateful [for] Michael's heroic deed. He gave me back my son and gave my son another chance at life. It is people like Michael that make the difference in a crisis and make us realize the importance of how precious life is with our children."

Maybe that says it all.

•PW



HE LOOKED A BIT LEERY when Mike Tachias (3435) visited him recently, but one of these days 15-month-old John Twiss will thank his lucky stars that Mike was around on March 12 to save his life.

Mike Learned CPR at Boot Camp

Mike Tachias, who's assigned to Patrol Division—South 3435 as a non-recurrent Security Inspector (NRSI), first had CPR training when he was in boot camp at the Army's Fort Bliss (El Paso) in 1979. And since becoming an NRSI at Sandia in 1985, he's kept that CPR training current with recertification courses offered by the Security training organization.

Mike learned firsthand on March 12 that CPR saves lives (see "CPR Pays Off"). Was there anything different about that situation? "Definitely," says Mike. "CPR procedures for an infant are very much different from those for adults. It's a much more delicate operation because a very small child has fragile bones and a tiny rib cage; pressure on the chest must be much lighter. And, because a baby's lung capacity is so small, you have to use much smaller breaths during mouth-to-mouth resuscitation."

Infant CPR

Elaine Squyres, American Heart Association employee and Sandia CPR instructor, elaborates: "When you're doing CPR on an infant, only two fingers are used for compression on the chest [in contrast to two hands on an adult], and depression depth is shallow — between one-half inch and one inch."

"Also, a baby's heart rate is much faster than an adult's, so the CPR compression rate is faster — between 100 and 120 compressions per minute," continues Elaine. "As for mouth-to-mouth resuscitation on infants, we tell CPR students to 'puff' only the air from their cheeks, not exhale from their lungs."

If you sign up for a CPR class offered by Sandia's Medical organization, you learn these facts and a lot more about CPR technique. Classes for beginners are offered twice a month. All Sandians and their spouses are eligible for the

training, which involves one class session from 8:30 a.m. to 3 p.m. Children of employees are welcome also if they're over 14 years old, or are of sufficient body size to practice the CPR technique.

Recertification classes are recommended once a year, according to Elaine — to keep people from getting rusty.

Legitimate Concern

"Most people who sign up for CPR classes tell us they're concerned about knowing what to do in an emergency situation involving family members or fellow workers," says Elaine. "That's a legitimate concern, because every year some 540,000 people in this country die from heart attacks. The Heart Association estimates that between 100,000 and 200,000 of those lives could be saved if CPR were administered properly at the onset of the attack."

"We'd like to see at least 25 percent of all SNLA employees certified in CPR," Elaine continues. "Right now, 1507 are certified; that's about 20 percent. But the numbers vary considerably from organization to organization; some have no CPR-certified people, while others, such as Pulsed Power Sciences 1200 and Security and Facility Support Services 3400 [all Security Inspectors are certified], far exceed the 25 percent goal."

In 1985, Sandia contracted with the Heart Association to direct and coordinate the Labs' CPR program. Classes were upgraded, as was equipment. Improved scheduling better met both Sandia's needs and those of employees. Since the joint venture began, the number of CPR-certified employees has significantly increased — from about 400 to the current 1507. "It's been a very successful partnership," says Elaine. "And we'd like to see even more Sandians and their families learn CPR."



LARRY CLEVENGER (3300) presents the American Heart Association's Heartsaver Award to Mike Tachias (3435). The award goes to people who have saved another's life by using CPR.

BACK FROM WASHINGTON and his SDIO post on a visit to SNLA, Clyde Northrup (400, left) checks on the progress Mark Davis's Metallurgy Department 1830 is making on MIST (Materials Information for Science and Technology), a computerized materials properties database on that will someday allow DOE and industry designers to choose the right material for a device with only one computer access.



(Continued from Page One)

MIST for Materials

"The software work in which Clyde and his colleagues have been involved will be of great use to the national engineering community," predicts Glenn Kuswa, manager of Technology Transfer Department 4030. "Currently, without due research into the correct materials, a designer might well design a working prototype, then start mass-manufacturing and find that the structure cracks — just because an inappropriate material was selected for the production line. MIST is expected to dramatically reduce the chances that this will happen."

MIST is co-sponsored by the DOE's Office of Scientific & Technical Information (OSTI) and the National Bureau of Standards. It is part of a larger DOE effort to computerize engineering and scientific data, the Scientific Information Research Program (SIRP).

"With MIST, we will have a DOE-wide approach to the materials data our engineers and scientists use; we will also help establish a national resource for U.S. industry," says Clyde.

After the MRS meeting in Tennessee, representatives from the national laboratories formed an *ad hoc* committee to identify materials properties databases in the labs. As one of its first projects, the committee published a printed directory of materials databases.

Project Boost

Collaboration with the not-for-profit National Materials Property Data Network, which has offices in New York City and Washington, D.C., provided a considerable boost to the MIST project. The network's subscriber members represent about 60 major

U.S. industrial organizations, including the Electric Power Research Institute (EPRI). The network's president, Gil Kaufman, offered to share a substantial amount of highly qualified computerized materials data to help speed up the development of the MIST system. Kaufman is also chairman of the new E-49 Committee on the Computerization of Materials Properties Data for the American Society for Testing and Materials (ASTM).

MIST software designers are now working intensively in conjunction with user groups at research centers such as LLNL, SNLA, SNLL, and LANL. "Basically, they are asking the engineering designers how they do their jobs," says Clyde. "This approach is intended to ensure that the system is built to follow the thought processes of good engineering design, thus making it easier to use and truly improving productivity. Building problem-solving paths into the MIST program adds an expert-systems component to the software that is needed in all engineering designs."

"But the ultimate idea is that you will be able to use a single source, [MIST], tell it what you want, and it will connect you through a series of menus to all of the appropriate information," Clyde concludes. "If you're a designer and you want to build something, you may say 'Give me materials that will meet all these design parameters.' MIST's gateway system will rapidly identify all of the appropriate materials for you — and allow you to easily use the materials properties data in your computer design calculations."

Clyde became a special assistant at the SDIO in September 1986, working on a national program on materials and structures. He will remain in Washington until August 1988. • Nigel Hey (3161)

At SDIO

Sandian Heads Special Materials Program

Clyde Northrup's path to the Strategic Defense Initiative Organization (SDIO) began when ex-Sandian Gerry Yonas — then the SDIO's Chief Scientist — identified the need for a special materials program. In the fall of 1985 Dick Schwoebel (1800) was one of the materials experts whom Yonas asked to recommend candidates for this position.

Shortly thereafter, Clyde was asked whether he'd like to be interviewed for the post. "My youngest son was just graduating from high school, so it was an appropriate time to consider new career opportunities," he says. "I have three sons all going to school and working in Albuquerque, and they were available to stay in our house while we were away. So when I was offered the job and a leave of absence, I accepted."

"The people at the SDIO are faced with a tremendous challenge, so it was obvious that providing materials support to the SDIO systems was going to be a real challenge for me as well," Clyde continues. "It is technically exciting and allows me to be exposed to a view of government operations that will be very helpful when I return to Sandia."

Down-to-Earth Problems

Clyde has found plenty of down-to-earth problems at SDIO, and familiar ones at that. "A first priority is to clearly identify the performance for these advanced materials," says Clyde. "The second is to rapidly get designers in the U.S. aerospace companies to participate with the materials communities in the development and qualification of these new materials. The third is to substantially accelerate and improve accurate communications involved in transferring technology from the laboratory to the final product."

Since beginning his stint at the SDIO, Clyde has set up an Interagency Panel for Materials Data (IPMD), which includes SDIO, NASA, NBS, DOE, DARPA, and the Undersecretary of Defense for Research and Development. "The initial task for the IPMD is to greatly improve the exchange of computerized materials properties data among all these agencies," says Clyde.

Clyde first came to Sandia as a staff assistant in the summers of 1958-60, while working in the physics department at Oklahoma State University. He earned a PhD in solid-state physics from Oklahoma State University in 1966 and served as a captain in the Army during the Vietnam war. He signed on permanently at Sandia in 1967, becoming a staff member in company with his father, Clyde Sr. (deceased), who started at Sandia in 1949.

Clyde has the distinction of having served in all the materials science organizations in the 1800 directorate before spending some time in strategic planning with the now-disbanded Future Options Group. He then joined Bob Clem's directorate (now Exploratory Systems 9100), looking at materials for advanced weapons systems.

He is named as co-inventor in a DOE patent on a method for the extraction of fuel (hydrogen-methane) from magma, along with John Galt (VP-1000, ret.), Terry Gerlach (1543), and Pete Modreski (former Sandian).



SANDIA CPR INSTRUCTORS were honored recently at a Coronado Club luncheon for volunteer service above and beyond the call of duty. Afterward, some of them posed with mannequins used in Medical's CPR classes. They are, from left, Tom Hesck (7412), Dennis Nations (1266), Antonio Saavedra (7482), Richard Cleary (1266), Dolores Drexler (3322), Conrad Carrington (3438), Richard Baehr (6310), and Gerry Lipka (7831). Conrad Carrington and Richard Baehr have both taught more than 10 classes, while the rest of the folks have at least five classes under their belts.



OUTGOING AND INCOMING Vice-Presidents of Research check the agenda for a recent Research Advisory Committee meeting. Bill Brinkman (left) became Executive Director, Research Physics Division, Bell Labs on April 1. Venky Narayanamurti will take over his new post on May 1. Both share their views of heading a research group in this issue of LAB NEWS.

New VP Shares Views

On Nurturing the Novel Neocortex

by Venky Narayanamurti*

We at Bell Labs have continued to come up with extraordinary innovations in the last five years — not just the last 10. The Karmarkar algorithm, new approaches to molecular beam epitaxy and devices, ultrashort light pulses, a megabit RAM, new single-frequency lasers, and high-capacity lightwave transmission systems are just a few examples which immediately come to my mind. Some of these achievements have already had an impact in enhancing AT&T's competitive position in the high technology arena. If history is any guide, more are likely to follow. In the ensuing, I give a personal viewpoint on nurturing innovation.

Innovation feeds on itself, and we are sure to see a continual stream of exciting new science and new technology. That's because our strength is in our *people*, in our explorers. They are the people Alexander Graham Bell would have enjoyed most. In fact, I often bring visitors, especially graduate students and postdoctorals, to Murray Hill to see Bell's statue where it says, "Leave the beaten track occasionally and dive into the woods — you will certainly find something you have never seen before."

But people don't just start innovating. People require an atmosphere where creativity can flourish, where ideas flow, and where personal development is encouraged. We at Bell Labs are fortunate that we are part of many decades of tradition in this area. I like to say that no one works for me, I work for my people. This is not meant to be just a cute line but is meant as a personal reminder that, even in a changing climate, today's managers must *nurture* — not manage — innovation.

It's tricky to create and maintain an atmosphere where ideas keep bubbling up. Such an environment is delicate, fragile and easily dam-

aged. Kumar Patel [Executive Director of Research Physics and Academic Affairs Division at Bell Labs] has often highlighted the three F's — Freedom, Focus, and Funding — as the basic ingredients which have led to a very favorable climate for research at Bell Labs. Using that as a springboard, I would like to talk about some underlying people-related issues — communications, freedom, and focus — which are crucial to the maintenance of a special environment.

First, communications. Managers and the scientists associated with them must feel free to talk to one another, or they're not going to get very far. Unless we can talk in a very open way, there can be no exchange of ideas. I certainly can't support, endorse, or evaluate what I don't know. And you can't know which direction to go if I don't give you feedback. When people know what is going on, they function much better. I find the best way of "reaching" people is through spontaneous interactions — in a scientist's "home" (his or her laboratory), informal lunch-time seminars, the physics tea-room, and corridor encounters.

Next comes freedom, especially the freedom to fail. If one is to be successful, one cannot be afraid to fail. Sometimes it is necessary to take several wrong steps before the right route is charted, but the learning that takes place in the process can be invaluable. Of course, there are obvious exceptions to this — astronauts and physicians, for example, have a very limited margin for error — but for the most part, intelligent people learn from mistakes. And each time you learn you grow. It will be the people who feel free to explore the uncharted regions of science and technology who will be successful.

Finally, the focus, which is seemingly in tension with freedom. In research the emphasis is

(Continued from Page One)

Brinkman on Research Management

tainly memorable — the drama of PBFA II's first shot stands out. And, on a smaller scale — compound semiconductors, superconductivity, the Basic Energy Sciences awards — just excellent work!"

Bill believes that the key to both past and future successes is Sandia's research environment. And an optimum research environment is characterized primarily by peer group pressure, according to Bill: "If you're surrounded by people who are intelligent and have creative ideas and if they're doing original research, then it helps *you* to do research."

Hiring good people is, of course, a prerequisite to creating that stimulating peer pressure, Bill noted. "But another prerequisite is too often overlooked. That is, to build an environment in which people have time to *think* — to think about what they're doing, and to think about going off the beaten path a bit in order to find new ideas; it's essential to make sure you haven't *always* got people on a determined track.

"Sandia does reasonably well at that task," Bill continued. "And it can pay off — Gordon Osbourn [1143] and Gus Simmons [Senior Fellow, 200] are two outstanding examples of people who have been given time to think."

Golden Era for Sandia

The overall climate of Sandia as an R&D lab is set, more or less, by top management. "The way Sandia operates in terms of using Small Staff as essentially its executive committee is quite effective," said Bill. "That's not to say that all the members always agree — we've had lots of debates —

but they've been frank and open, and that's very important."

From Bill's point of view, the current climate at Sandia is excellent: "I see morale as being in really good shape. Oh, Small Staff worries a lot and argues back and forth a lot about what directions we're going — and that's very healthy. All in all, I really think this is a golden era for Sandia.

"I don't see any imminent threat to the company," Bill noted. "I think the company has some problems to work out — and *is* working them out. But the fact is, as a whole the company is very healthy. Management has not allowed this company to grow a lot in the last few years, and that has been smart judgment.

"You see, it's not necessary to grow," Bill continued. "You always want to improve quality, of course. But you don't need to grow to do that. After all, the research area of Bell Labs hasn't grown in 30 years, and its quality has stayed very high."

The Brinkman Management Philosophy

"I would like to think that my philosophy as head of the organization has furthered 1000's progress toward eminence as a scientific research laboratory," Bill said.

That philosophy involves more than simply "managing" the organization. "I've tried to provide technical leadership as well," explained Bill. "Managing means you keep the place well organized and running smoothly. But technical leadership means you get out into the labs and make sure you understand what's going on. And you see to it that you know what the researchers are doing, maybe suggest a way or two to improve things. In general, you try to contribute to the overall direction of research.

"I've tried very hard to provide that kind of leadership," he noted. "I hope it has had a positive impact on the research of people here."

Some Predictions

Bill predicted some changes in national policy that will affect Sandia: "I can't believe that the military spending in this country isn't going to level out, possibly even decrease, in the next administration. So I think it's very important that Sandia position itself so that it will have alternatives.

"I personally have been trying to think of ways that Sandia can contribute further to the nation's welfare by becoming a part of the push for industrial competitiveness currently under way in Washington," Bill continued. "The research group working in the semiconductor area and the optoelectronics area is trying to figure out how to contribute to that theme in general and, more specifically, how our work could help solve the energy problem.

"I think Dan Hartley's and Bill Snyder's creation of the new directorate [6500] was a very smart move; it positions us well to be involved in the next generation of nuclear power plants.

"But the question is whether we should focus only on energy or whether we should expand on that," Bill pointed out. "As we answer that question, we have to realize, I think, that the government is going to be much more willing to get involved with industry in the future — that is, increased emphasis on technology transfer.

"We've done well so far: dye-containing photoresist, laser erasing/writing on semiconductor chips, the downhole seismic generator, microcellular foams, polysilanes, the semiconductor bridge explosive — they're all in one stage of technology transfer or another.

"But we have to keep going. And there are bigger issues that are going to come up," he predicted. "Private companies are starting to come here asking: Would you do reimbursable work in this area? do you have the expertise? could you help us out?"

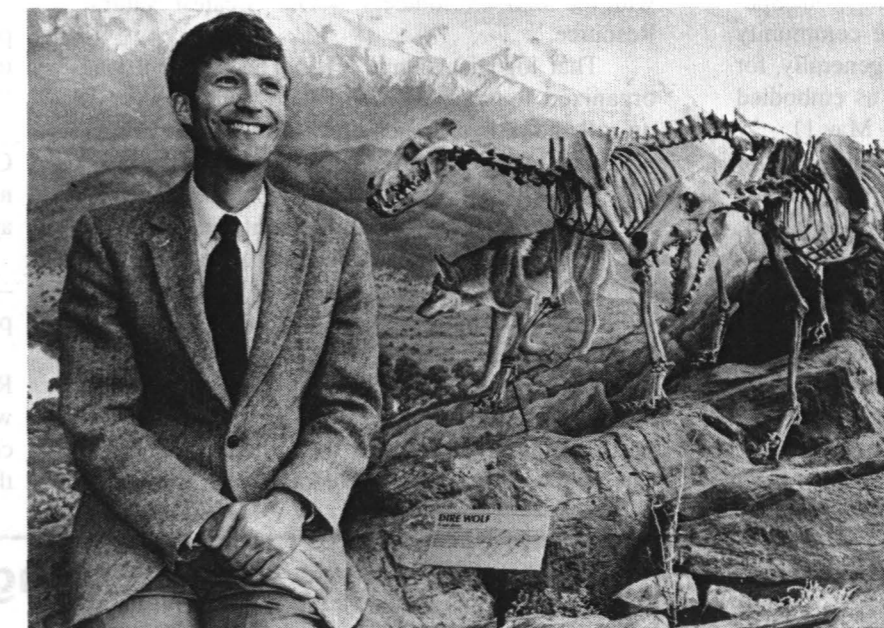
"My guess is, that will become a bigger issue — this whole business of competitiveness is going to get bigger. We've got to get involved with it on our own or we are going to get more pressure to expand our role."

Some Further Out Predictions

LAB NEWS asked Bill to list the research organization achievements he'd expect to see if he returned to Sandia in five or ten years. "Well, that's tough to predict," he responded. "I hope that by then we'd have introduced optoelectronics into nuclear weapons. And I like to think that we'd have a first-rate research group in computer science, and in embedded computing and parallel processing." How about a breakthrough in pulsed power? "Okay, add another — we'll have reached ignition on PBFA II."

And a Disappointment

Asked his major disappointment during his tenure, Bill responded quickly: "Somehow we didn't get SWERVE off the ground in the way that I would have liked to see it go. I thought SWERVE was the most sophisticated piece of technology that I had seen since I'd been here — but, at least in the round I was involved in, we couldn't sell it to DoD. Personally, if there's anything I'd like another chance at, it's SWERVE."



Community Focus

How New Mexico Became Enchanting



Drive by the red cliffs of Abiquiu, the lava flows of El Malpais, the crater forming Valle Grande, and the gypsum dunes of White Sands

National Monument and you're left with one overriding impression: It took immensely powerful geologic events to shape New Mexico's landscape.

And that's just what's visible on the surface. Underneath there are salt caverns, hot springs, and plates in the earth's crust — all changing by varying degrees over the eons. In the process, the remains of ancient creatures were — and are being — shifted. It all seems very complex and difficult to size up.

But there's one person in town who can describe and evaluate the state's varied geology — and its fossil record. That's Jon Callender, director of the New Mexico Museum of Natural History. And he'll be giving the upcoming Community Focus talk on Tuesday, May 5, at 12 noon in the Tech Transfer Center.

In his talk, Jon will cover the state map quadrant by quadrant and focus on the processes that have shaped the landscape. Most of the rocks he'll talk about are young, a bare 600 million years old. He'll also describe small and large activities in the earth's crust that have relocated skeletons of dinosaurs and mammals.

Bill is now Executive Director of Bell Labs' Research Physics Division. "It's basic research in physics but also research in what I would call electrical engineering devices, optoelectronic devices," Bill said. "I'm looking forward to going back there; Bell Labs is an interesting place.

"And I'm pleased to welcome Venky Narayanamurti to Sandia as I depart. He and I have worked together over the years, and I know he's going to do well in his new job in 1000." (See "On Nurturing the Novel Neocortex.")

Bill sees greater cooperation between Sandia and Bell Labs in the future — "I hope to work on that issue." And he sees more people at staff level, as well as management, going back and forth between them — "That's healthy for both organizations."

Goodbye, Sandia

Sandia has not necessarily seen the last of Bill Brinkman. Former heads of research have a way of popping up again from time to time in one capacity or another. And Bill looks back fondly on his short stay here — "very pleasant, a lot of fun." He likes the area too — "Love Albuquerque and New Mexico. It's a very nice place to live. The weather, the climate, the accessibility are impressive. So is the slightly less hectic nature of life here. It's something you just can't help but notice when you come from the East Coast."

So maybe it's "goodbye — for now." ●BH

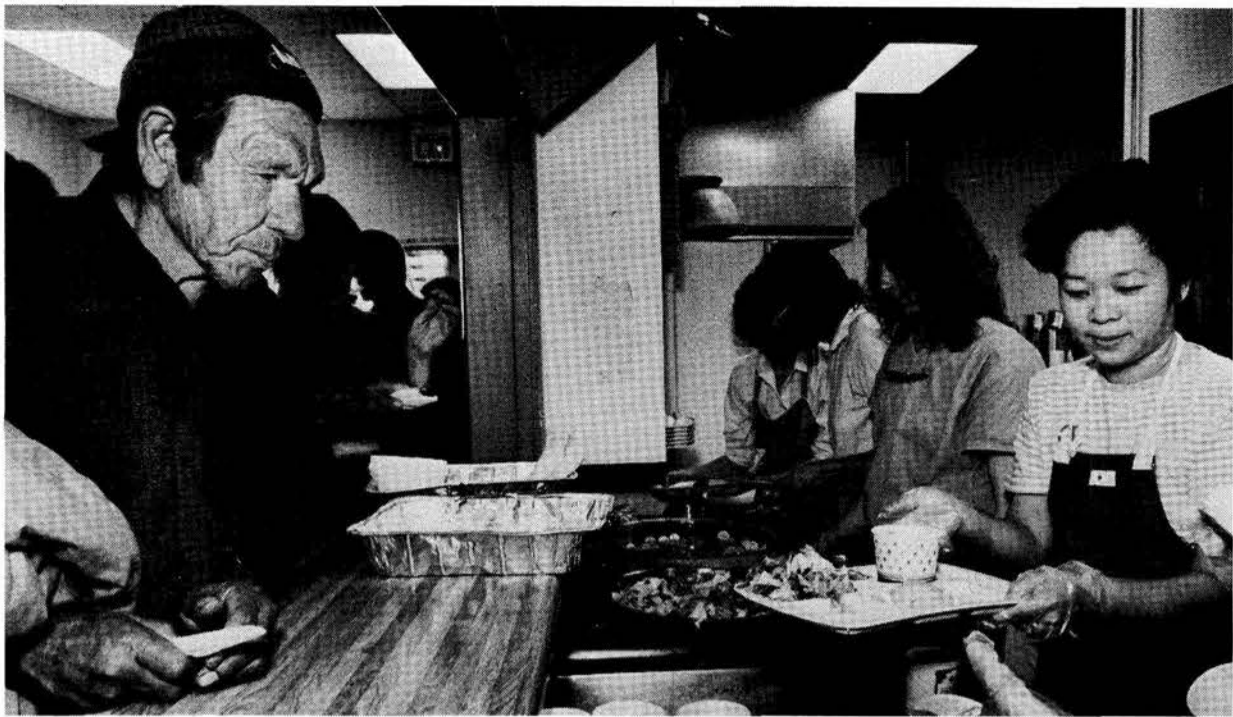
COMMUNITY FOCUS speaker Jon Callender and friends. Dire wolves became extinct when the glaciers receded — about 9000 years ago. These animals were native to New Mexico during the Ice Age, according to Jon, and may be the ancestors of today's Mexican (Lobo) and timber wolves. The diorama shows Sierra Blanca, a high peak near Ruidoso (in southeastern NM). Jon will share his expertise on New Mexico's geological and fossil history during the noon hour on May 5.

A geologist with a doctorate from Harvard, Jon has edited 11 guidebooks and two journals on regional formations that were published by the NM Geological Society. He's also published 35 papers on the same topic — and nine maps.

Jon left his native southern California in 1972 to teach at UNM. He's been in Albuquerque ever since, becoming the Assistant Chairman of UNM's Geology Department from 1979-81. In 1983, Jon became Chief of Scientific Programs and Curator of Geology at the museum. He has served as director for the past three years.

That post, which caps more than 30 years of interest in the outdoors, gives him a forum to make natural science understandable and interesting to the curious of all ages. Jon is already well known for his "Geology of New Mexico" class at UNM's Community College.

His recent research interests include studying the Rio Grande rift — the fracture zone running down the middle of the state — and the crystalline rocks in the north, some as old as 1.5 billion years (Precambrian). Jon has also done some applied research. Six months ago, with Regina Hunter (6334), he completed a geologic prediction of possible hazards in radioactive waste disposal.



NEXT WEEK is National Volunteer Week. But that's not why Phyllis Pei (3314, right) helps serve meals to Albuquerque's homeless. Describing herself as a volunteer looking for action, she has been a Volunteer In Action since January. Phyllis is really committed to the concept of Project Share, which serves food donated by local restaurants and churches, and to the team she's a part of every Thursday night. Another Sandian, Kay Schoenefeld (6452, third from right), has helped Project Share with the meal-serving program through her church for the past two years.

Viniferous Applause for Volunteers

1986 Was a Vintage Year for VIA

If you've recently received an invite in the mail for a wine-tasting party, that's the Volunteers in Action (VIA) program's way of thanking you. Specifically, for toiling voluntarily in the community "vineyards" last year or earlier. And generally, for celebrating the spirit of voluntarism, as embodied in National Volunteer Week (April 27 - May 1).

President Welber will host the celebration for 585 Sandians, all volunteers in local organizations. It will be held this coming Tuesday, from 4 to 5 p.m. at the Coronado Club.

At this second annual party, you'll be wined — and wined again — with samples of two California specials. The wine pourers? Department managers (one from each vice-presidency) on the VIA Committee: Glen Kepler (1810), chairman; Ray Bair (2110); Art Arenholz (3710); Glenn Kuswa (4030); Dennis Miyoshi (5240); Don Scheuler (6220); Jerry Kennedy (7130); and Paul Stokes (9110). And top-

ping it all off, VIA administrator Karen Shane (3163) says, the wine pourers will be wearing little red aprons with the logo "Volunteers — Our Greatest Natural Resource."

That logo is vintage VIA. The program was organized four years ago to help Sandians (both on-roll and retired) match up with community organizations requiring some extra help and expertise. VIA helps Sandians make initial contacts — partly by making selected announcements in the LAB NEWS. It also keeps a running list of agency requests for help and keeps registrants directly informed about volunteer opportunities specific to their personal interests and skills.

"1986 was a very good year," says Glen. "We had growth in the number of requests for help and in the number of volunteers who filled those needs. The match-up was about 80 requests to 325 volun-



PROJECT SHARE TEAM COORDINATOR at St. Martin's Hospitality Center every Thursday night is Sandia contract employee Misch Lehrer (assigned to 6224). Project Share serves hot meals to about 120 homeless Albuquerqueans three nights a week. "My wife, Linda, and I know we're relatively prosperous, and we wanted to help the city's homeless," says Misch. "This is a great way to do it. With enough support — volunteers, donated food, and money — the Project hopes to serve meals every night. We want to help make that happen."

teers. Luckily, many requesters needed several volunteers, so the year was a rousing success."

The increased participation in VIA means more people attending the celebration. "Some 250 volunteers came to the party last year," says Karen. "We're expecting even more this time around."

To enhance the mood, a quartet called Las Cuatro Cañas (The Four Reeds) — headed by clarinetist David Judd (2613) — will play chamber music again this year.

The wines — from Sutter Home and Sebastiani — were donated by Albuquerque-based Quality Import Co. There'll also be hors d'oeuvres and snacks.

If you were invited but haven't yet sent in your RSVP, give Karen a call on 4-3268. And if you weren't invited, that's no reason for sour grapes. Your chance will come in 1988 — if you sign up for VIA this year. ●ID

Welcome

Albuquerque

- Ronald Hahn (7262)
- Renita Saunders (154)

Colorado

- Maureen Jackson (3532)

Indiana

- Lewis Reif (5146)

Massachusetts

- Terry Garino (1842)

Mississippi

- Blase Gaude (7233)

Oklahoma

- Mark Powell (2545)

Pennsylvania

- Max Terchila (7222)

Texas

- Robert Lohr (7484)

Congratulations

To Gloria and Thomas (3435) Baca, a daughter, Kelly Jean, April 5.

Sympathy

To Sue Ricci (7831) on the death of her sister in New York, April 7.

To Bonnie Haynes (6447) on the death of her mother in Nevada, April 8.

To Janet Walerow (3162) on the death of her father-in-law in Dallas, April 10.

AT&T Savings Plans

The following are the Earnings Factors as of Jan. 31 for the AT&T Savings Plan for Salaried Employees (SPSE), the AT&T Savings and Security Plan for Non-salaried Employees (SSP), and the AT&T Voluntary Contribution Plan (VCP):

	Earnings Factors
SPSE (Savings Plan for Salaried Employees)	
AT&T Shares	.9892
Government Obligations	1.0085
Equity Portfolio	1.1315
Guaranteed Interest Fund	1.0082
Diversified Telephone Portfolio	
Unrealized Appreciation	1.0063
Realized Appreciation	.0052*
SSP (Savings and Security Plan - Non-Salaried Employees)	
AT&T Shares	.9893
Guaranteed Interest Fund	1.0086
Diversified Telephone Portfolio	
Unrealized Appreciation	1.0653
Realized Appreciation	.0053*
VCP (Voluntary Contribution Plan)	
AT&T Shares	.9898
Mutual Fund Equity Portfolio	1.1002
Money Market Fund	1.0051
Guaranteed Interest Fund	1.0084
Diversified Telephone Portfolio	
Unrealized Appreciation	1.0629
Realized Appreciation	.0054*

* The 1 has been removed from the earnings factor. Current month's DTP earnings may be calculated directly: Earnings Factor x DTP Current Worth = Current Month's Earnings.

Most People Ask for the Moon

You won't get to see the Shelton supernova from UNM's Campus Observatory. That's only because the stellar explosion — discovered on Feb. 23 — is not visible from the northern hemisphere. But there are many other stars and some planets on view in the sky over Albuquerque.

Most visitors ask for the moon — and get it. Over the course of a Friday night, when the observatory is open to the public for two hours, it's possible to see parts of the sunlit face of the moon — at increasing magnifications, for heightened drama.

Sea Bases of Men on the Moon

Jody Asbell — graduate student in astronomy and one of the four tour guides — is quick to point out craters: "Quick, look! See the astronauts' footprints?" And as the large Astromak telescope focuses in on the moon's day/night line you have a chance to hog the eyepiece for a few minutes to seek signs of men on the moon.

Perhaps only a poet could trace the tracks of New Mexico's Harrison Schmitt when he walked on the earth's 4.5-billion-year-old satellite back in 1972. But any one of the 100 or so people who come to the observatory-on-the-hill when the moon is out on a clear night can spot large landmarks. One is the Sea of Tranquility — the dark, circular plain where Apollo 11 landed. Or the Sea of Serenity, another "eye" on the luminous face of the moon that's always turned towards earth.

Despite the 40-year-old observatory's location in what is now the middle of a brightly lit city, you can see the astronomical sights rather well.

The 12-in.-diam. reflecting telescope, an Astromak, in the rotating dome is a high-tech optical design, according to Michael Zeilik, professor of astronomy and chief tour guide. "The Astromak's the only one of its type open to the public in the world," he says. "Its field of view is wide — visually and photographically."

That's because the Astromak has a focal length of 60 inches. (Actual magnification can be calculated by dividing that number by the focal length of whatever eyepiece is used. A one-inch eyepiece magnifies 60 times, a 1/3-inch eyepiece 150 times. The latter can be doubled again to 300 times.)

The \$25,000 Astromak, bought and installed by the UNM Foundation two years ago, has several other useful features. "Some coordinates — mapped by the late 18th-century astronomer Charles Messier — are programmed into a microprocessor for easy access," Michael says. "And the Astromak is capable of smoothly tracking a given object across the



DOMES OPENS at UNM's Campus Observatory to allow tour guide Jody Asbell to set the Astromak telescope's sights on the stars.

sky" — as the earth rotates around its axis over time.

But it's not an astronomical robot. The graduate student on duty uses an electronic switch to move the Astromak around and a hand lever on the wall to rotate the slit in the roof of the dome.

Three more telescopes — 10-in. mirror-based Celestrons — are located downstairs, in a small courtyard.

Game of Astral Roulette

One day, graduate student Don Beckert may focus on stars by visitor's request. For example, "O'Ryan, named for the famous Irishman." Object in focus: The Orion nebula, a diffusely lit cloud that makes up what appears to be the middle "star" of the Orion (Greek for "hunter") constellation's sword. The nebula is a hot cloud of gas and dust where new stars are formed — barely one million years old. The young, hot stars emit immense amounts of energy, heating the surrounding gas and causing it to glow.

Another time, Don may set the coordinates on a zodiacal constellation. One is the Beehive cluster, a loose collection of ancient stars (older than our sun) strewn throughout Cancer. Or, by the light of red flashlights used to stabilize night vision, he may

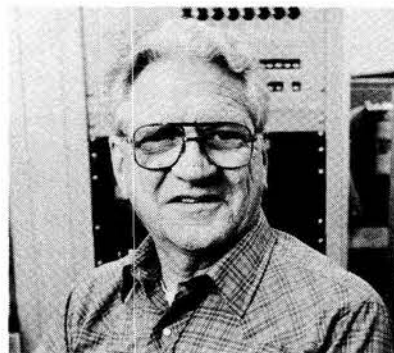
set a scope on anything else in the SAO Star Catalog that happens to spin by in the roulette wheel of the skies above.

"If you come to the observatory every few weeks during the year, you'll see a good selection of constellations in the northern sky," he says. That's because stars shift positions in the sky as the earth loops around the sun, covering some distance in the galaxy.

There are always astral gluttons who'd like to see more — and quickly. "People like best whatever isn't in the scope — the Horsehead [nebula] or their lucky star," says Jody, laughing. For those visitors, slides of past sightings and studies are available in a little theatre right off the courtyard. Graduate student Susan Durham has available slide shows on a number of topics, including Saturn and black holes.

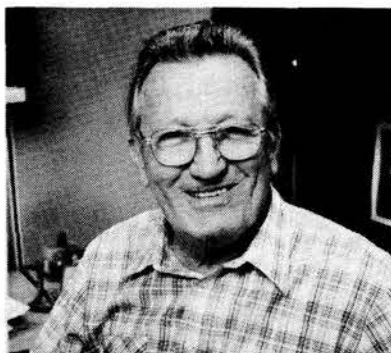
This semester, the Campus Observatory will hold "public nights" for only two more weeks (when final exams start for the graduate students). The hill-top site is on Yale two blocks north of Lomas. Hours are 8-10 p.m. on Fridays, on clear nights only. Though there's no admission charge, a donation of \$1 per family is suggested. For details on what's in sight, call the hotline at 277-1446. ●ID

RETI R I N G



Glen McFall (7241)

35 yrs.



Chris Christensen (2543)

31 yrs.



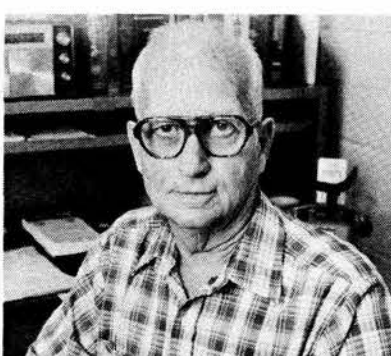
Cecil Mock (2312)

36 yrs.



Ed Domme (2620)

36 yrs.



Floyd Mastin (7133)

35 yrs.

Take Note

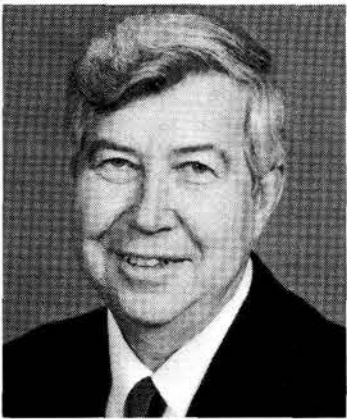
The third annual Meeting on the Outdoors will be held May 2-3 at the Sandia Ski Basin Lodge on NM Highway 44. William Penn Mott, director of the National Park Service, will speak on "Environment in NM: A New Economic Frontier." Governor Garrey Carruthers has been invited, as has Thomas Bahr, Natural Resource Department Director. For more info or a brochure, call Lew Helm at 821-8586.

Retirees — Please Note

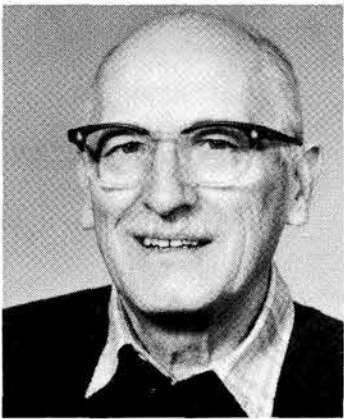
The new vehicle decals have not yet been received; however, the decals currently on your vehicle(s) will continue to be honored by the military at the base gates until Benefits sends you your new decal(s).

Aril: An exterior covering or appendage of some seeds that develops after fertilization as an outgrowth from the ovule stalk. The Albuquerque Aril Society presents its 24th annual show, "Exotic Treasures," on May 3 at the Albuquerque Garden Center (10120 Lomas NE) from 1 to 5 p.m. No admission charge. It's probably a flower show.

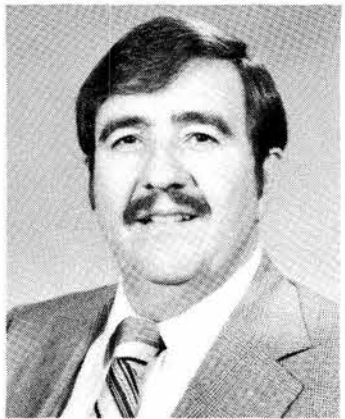
MILEPOSTS
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Joe Ambrulevich (8262) 20



Glen Corbett (7483) 20



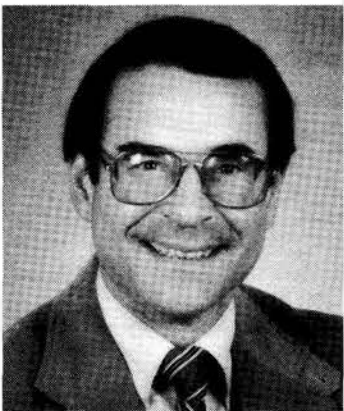
Louis Nogales (5238) 25



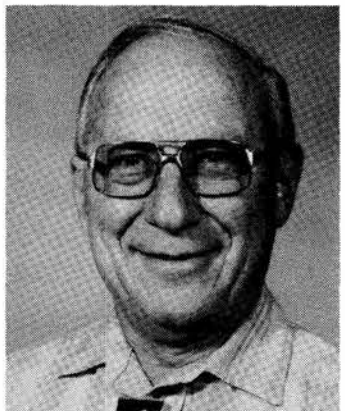
Bertie Huston (7243) 30



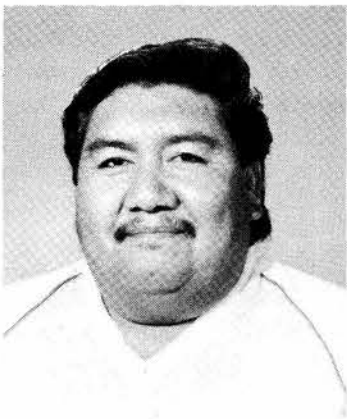
Dale Young (2631) 35



Marty Abrams (8434) 20



John Lewin (1512) 20



Juan Waquie (2831) 10



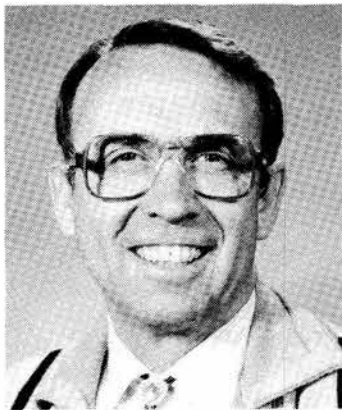
Wynona Sexson (6440) 20



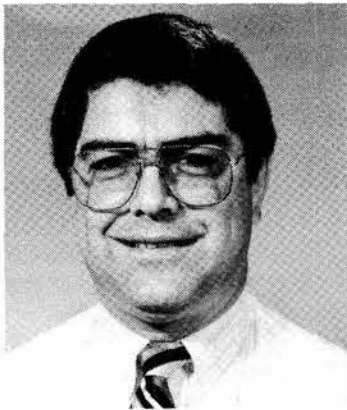
Henry Hanser (8440) 20



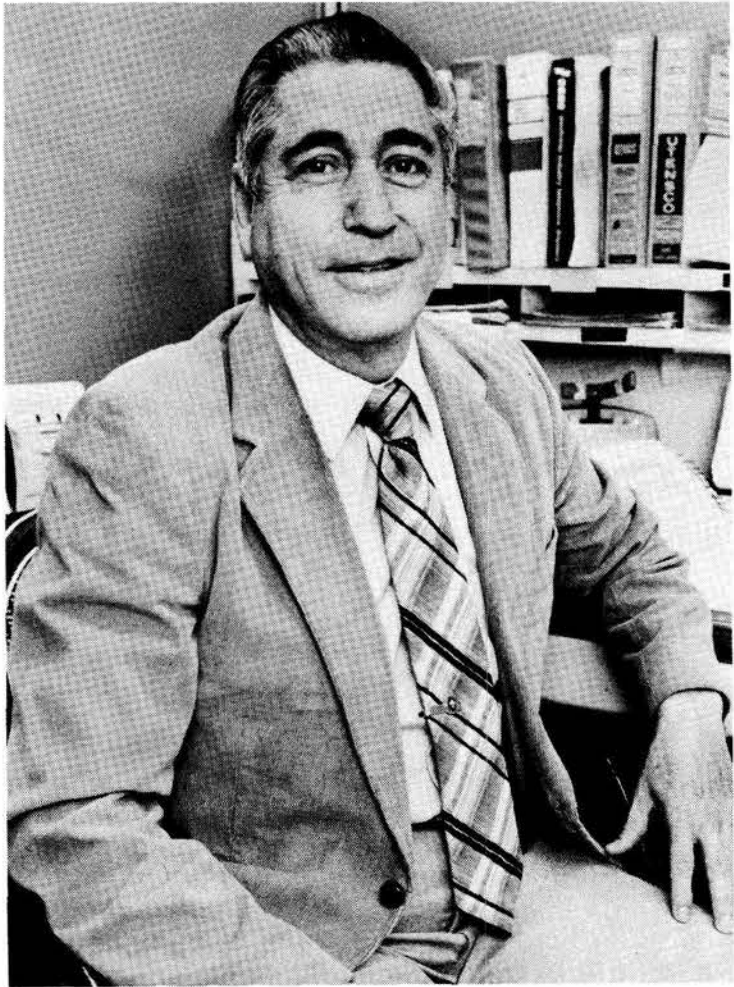
Ed Brass (2000) 30



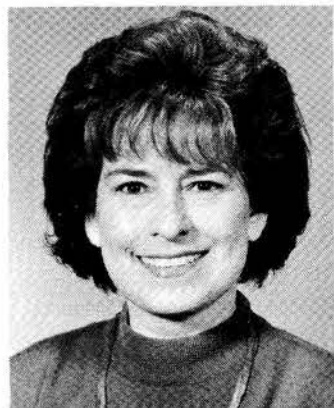
Archie Lackey (5146) 30



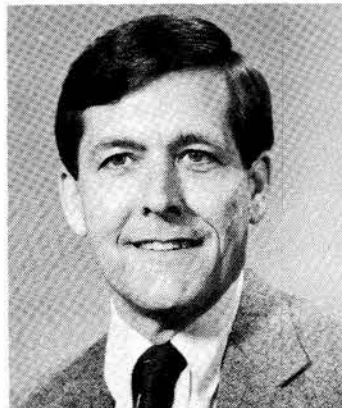
Al Manzanares (2857) 20



Mike Barela (3741) 35



Maria Feliz (3714) 10



Dennis Hayes (2530) 30



Clyde Northrup (400) 20

Take Note

Calvin Jaeger (2523) was recently promoted to lieutenant colonel in the U.S. Army Reserve. He also received an Army Commendation Medal, First Oak Leaf Cluster, for his service as director of the Security, Plans, and Operations Section in his reserve unit — the 156th Support Group.

Gila Caton (3723) is chairing the 5th Annual Symposium for CPAs in Private Practice on May 15 at the Sheraton Old Town in Albuquerque. For registration information, call the New Mexico Society of CPAs at 262-1926.

The Beginning Experience will conduct a workshop for divorced and widowed persons May 15-17 in Albuquerque. Workshop activities include personal reflection exercises and small-group dialogues. More info on time and place from Charlie Cooper, 881-0906, or Patricia Martin, 298-7035.

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5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
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11. For active and retired Sandians and DOE employees.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

LARGE DIAMOND SAW w/one buffing and two polishing wheels, \$500. Bickstaff, 898-5529.

S&W 22-CAL. Model 34 4" Blue, NIB, \$255; AMT, 380-cal. SS, NIB, \$195. Greene, 299-4163.

ELECTRIC DRYER, \$100; Formica table w/4 chairs, \$25; Akai cassette deck, \$50; wood-top round table, \$15. Dickinson, 828-0640.

CAMPER SHELL, fits import truck, short bed, all metal, \$250 OBO. Weinmaster, 298-1620.

FOLDING PING-PONG TABLE w/wheels, \$50. Hardin, 828-1502.

APPLE IIe, 128K, w/256K 80-column memory expansion card, graphics printer interface, optional Epson FX-86 printer, software: Appleworks/more, \$1000 negotiable. Duggan, 242-5966.

WEDDING DRESS, never worn, size 10; matching lamps, \$15/pr.; draperies/valances for girl's room; hanging Spanish lamp. Brown, 298-5784.

TWO TRAVEL FOLDING COTS w/covers, never used; two security gates, 3', expands to 5', 32" high. Herron, 292-6882.

GERRY BACKPACK, \$25; women's Wilson golf clubs/bag, \$75; punch bowl/24 cups, \$40; silver-plated coffee/tea service, \$100. Green, 296-3889.

BALDWIN ACROSONIC PIANO, spinet, cherry wood, w/matching bench and music books, \$950. O'Dowd, 299-1789.

POPS CONCERT TICKETS, Music Under the Stars at First Plaza, 5/30/87, four, \$20 tickets for \$18 each. Eagan, 281-9589.

OLIVETTI INK JET PRINTER, does graphics, \$50. Hansche, 281-5623.

CERAMIC FLOOR TILE, raisin color (dark tan), one box covers 10 sq. ft., have four boxes, \$20/box. Hamilton, 294-5850.

SAILBOARDS, Tencate "Fun Fan," 140 litres, 10'10", w/5.5 full batten sail and rig, \$565 OBO; Rocket 83, 102 litres, \$185. Healer, 298-6967.

HOTPOINT 17.7 cu. ft. refrigerator/freezer, new; twin-size mattress set. Fitzpatrick, 881-9357.

SOFA, Lawson-type, gold velvet, \$175; two club chairs, custom slip-covered to match sofa, \$50 ea. Rainhart, 821-3690.

BIRD CAGES, large \$45, small \$25. Stuart, 265-7315 day or night.

TWO-PIECE CORNER COUCH, 6-cushion, brown, one year old, \$1000 new, sell for \$600. Middleton, 299-6148.

KARATE UNIFORMS, children's sizes 8 and 12, white, \$10 each set; hand and foot pads, \$25. Smiel, 865-9081.

SAILBOARD, PACIFIC, w/rig, for beginners, \$275; utility trailer made from 1/2-ton Ford pickup, \$225. Schuler, 821-8944.

TWIN BEDS w/mattresses, box springs, Harvard frames, \$80; chest of drawers, \$50; two matching night tables, \$20. Horton, 883-7504.

WOOD STOVE, Schrader air-tight, \$275; 30" prehung door, 24" bypass doors, \$10 each; camper shell, Ford LWB, \$170. Wilcoxon, 296-8295.

BICYCLE, 10-speed Huffy, \$25; turntable, Pioneer, \$50; small wooden bookcase, \$15. Hinkel, 298-8226.

AUTO PARTS for Saab V4 Sonett: 1-5/8" intake manifold, engine cover, air cleaner, 1500-cc crankshaft, others. Heintzleman, 884-6552.

B&D ELECTRIC LAWN MOWER w/catcher, \$95; MW garbage disposal, \$85; large gold velour sofa, \$120. Torres, 299-5789.

FREEZER, Sears upright, 17 cu. ft., frost-free, white, lockable, \$150. Trump, 299-5162.

70-GAL. AQUARIUM, complete, saltwater, one year old, \$375; solid wood cabinet stand, \$75; various saltwater fish. Boal, 296-4660.

CAR-TOP LUGGAGE RACK, holds several suitcases, \$15. Harrison, 292-6856 evenings.

TWIN BEDS, two, \$75 each; Ethan Allen antique pine bedroom set, will consider offers. Bustard, 296-5993.

GE REFRIGERATOR, 17 cu. ft., gold, \$100. Simms, 299-4418.

22-CAL. IVER JOHNSON REVOLVER, 8-shot, 6" bbl., Outers cleaning kit, holster, 150 rounds ammo., \$70. Russell, 298-4949.

SLIDING GLASS DOORS, 8', 2 sets, w/frames, one pane broken, all for \$100 OBO. Brumley, 877-2667.

RIDING LAWN MOWER, 25", 5-hp motor, 3-spd., \$300. McMullen, 298-2801.

SPAULDING METAL DRIVER, Aldila graphite shaft, \$105 new, sell \$70; Haig Ultra woods 1,2,3,4, \$80. Zownir, 256-3753 or 256-3717.

POWER SUPPLY, 40V-500MA variable output boxer cooling fans, timer motors, audio cables, other garage sale items. Stuart, 299-9190.

GE 30" ELECTRIC RANGE w/oven, drawer, and matching hood, cream color, \$175. Hitchcock, 298-4746.

COLEMAN LANTERN, Coleman double-burning stove, Sport-Tex 4-man tent w/duffle bag, \$90. Koehler, 262-1882 or 291-0558.

SLIDING GLASS DOOR, 8', \$60; four wheels, 5-hole, for Ford pickup and Explorer wheel covers, \$45. Roberts, 881-2815.

VIOLIN, Roth, full-size, \$350 OBO. Kissam, 881-2895.

PROM DRESS, black and white stripe, Gunny Sax, size 5, \$50 OBO. Maloney, 821-6661.

BLINDS, woven wood, earthtones, fit sliding glass door; 4 bamboo roll-up blinds, 36" wide, all for \$29. Barr, 821-5870.

CADILLAC LATHE, 17" x 33", w/all tooling, \$4000 OBO. Cumiford, 877-6498.

LACE-MAKING KIT, instructions included, for pillow bobbin lace. Jones, 881-1918.

GOLD NYLON CARPET w/pad, 82 sq. yds., short shag; red nylon shag w/pad, 26 sq. yds., all \$3/sq. yd. Connor, 268-8718.

HOOVER CARPET CLEANER and waxer; Walton belt vibrator; luggage rack for VW Beetle. Burright, 299-7386.

BEDROOM FURNITURE SET, dresser, mirror, queen headboard, night stands, \$300; hi-riser frame and mattresses, \$50; more. Loubriel, 268-1341.

HOUSE PLANTS, variety; kitchen table, rectangular, w/4 chairs, limed oak. Carpenter, 299-0070.

SWIVEL RECLINER, \$90; back chair, \$10; canvas car cover, \$8; stereo headphones, \$10; dimmer switch, \$1. Robinson, 293-7231.

COFFEE TABLE, dinette set, dresser, night stands, entertainment center. Dillon, 265-3440.

ANTIQUE ROLLTOP DESK, \$600; electric hedge trimmer, \$10; b/w TV,

\$10. Marder, 291-8140.

KID'S SIDEWALK BICYCLE w/training wheels, \$30; tricycle, \$20. Passman, 821-4999.

CASEMENT WINDOW HARDWARE: cranks, latches, screens, etc. Luikens, 881-1382.

5-1/2" PANASONIC COLOR TV in tilt frame w/remote control, \$125. Fienning, 298-0743.

ELECTRIC GUITAR, Ibanez, Pro-Line, locking tremolo, fine tuners, hard case, less than one year old, \$475. Ewing, 268-6920.

COAT, women's all-weather, soft vinyl, teal blue, silver buttons, belt, size 14/16, \$25. Easton, 256-7717.

RUGER SINGLE-SIX REVOLVER, .22-LR/.22mag, 5-1/2" bbl, w/holster, \$140 OBO. Drury, 293-1929.

McINTOSH 128 w/mouse, Apple printer, manuals, 6 softwares, never used, \$1800; Cerwin-Vega speakers, \$350 each, \$750 new. Levan, 821-0980.

FORMICA TABLE w/leaf and 4 chairs, \$30. Ystesund, 293-7634.

TRANSPORTATION

'81 BUICK REGAL LTD V-6 coupe, voluntary repossession, opened for sealed bids. We reserve the right to refuse all bids. All bids subject to prior sale. Sandia Lab Fed. C.U., 844-4555.

'79 HONDA ACCORD, \$1500. Sweatt, 292-2820.

'86 BUICK SKYLARK, white, AT, pwr., AC, \$8400; '83 Chev. Cavalier wagon, gray, \$3950. Clement, 299-2324.

'80 YAMAHA XS400, helmet & battery charger included, \$325 OBO. Barbera, 275-2562.

'55 CHEV. 2-dr. hardtop, new engine, new rear end, \$6000 firm. Macias, 831-9414.

'75 PINTO SW, \$450; '78 Ford LTD SW, \$1400. Johnson, 296-1917.

'77 MONTE CARLO, PS, PB, PW, AC, AM/FM cassette, 60K miles, \$2250. Gough, 822-0090.

'85 HONDA GL1200 Aspencade motorcycle, stereo intercom, etc., garaged, matching helmets, \$5475. Collins, 266-5868.

FUGI 12-speed, chrome Mollie, double-butted, 23" frame, alloy wheels, Turbo 'S' tires, \$150. Benecke, 255-1356.

21" ROSS MT. HOOD ATB frame, with fork, brakes, wheels, seat post, rear rack, \$180. Kovacic, 256-9867.

BMX, Roger De Koster dirt bike, royal blue, custom, w/thorn-proof tires/tubes, \$90. O'Dowd, 299-1789.

'74 VOLVO, 6-cyl., model 164, 4-spd./overdrive, sun roof, AC, \$1900. Rogers, 256-0066.

'86 VW CABRIOLET, red w/ black top, 6K miles, under warranty, \$12,500. Williams, 292-1210.

'81 MAZDA GLC wagon, 5-spd., AC, AM/FM stereo, new battery and brakes, \$1425. Horschel, 298-0884.

'68 FORD TORINO Fastback, 390 V-8, AT, PB, PS, one owner, 75K miles, \$2000 OBO. Hosking, 836-2128.

'84 PLYMOUTH VOYAGER LE, all options plus running boards, tinted front windows, 33K miles, \$10,000. Fowler, 247-9305.

'73 MAZDA RX-2, new tires and brakes, 4-spd. manual, \$600 OBO. Stuart, 265-7315 day or night.

'86 NISSAN pick-up, AC, AM/FM, 5-spd., cloth seats, \$6000 OBO. Woodall, 822-0060.

MINI BIKE, \$150 firm. Ondrias, 821-8220.

'81 MacGREGOR SAILBOAT, trailer, 7.5 Honda and 3 sails, \$6000. Brewer, 844-2559.

'78 MERCURY MONARCH, new tires & battery, AT, PS, PB, cruise, AM/FM radio, 50.8K miles, \$2500. Maase, 292-7013.

'59 AUSTIN-HEALEY "Bugeye" Sprite, reconditioned throughout, will consider trade for 4-WD or FWD, \$2400. Heintzleman, 884-6552.

'84 HORIZON, 44K miles, 4-dr., 4-cyl., AT, PS, AC, AM/FM cassette, man-

uals, \$3950 book, make offer. Sang-er, 898-7178.

'55 CHEV. BELAIR 4-dr. sedan, 327, power glide, headers, new paint/upholstery, air shocks, gages, tach. Jones, 281-3762.

'81 HONDA GL500I SILVERWING, black, AM/FM cassette, 14K miles, extras, \$1500 OBO. Biesterveld, 255-7415 evenings.

'55 FORD 3/4-ton pickup, 272-V8 rebuilt, new brakes, U-joints, extra parts, needs cosmetic work, \$2000. Stuart, 299-9190.

'65 CORVAIR MONZA 4-dr. hardtop, \$250; trailer frame from burned Coleman tent trailer, \$75. Brumley, 877-2667.

'81 TOYOTA COROLLA, SR-5, AC, AM/FM, \$3300. Garst, 884-5176.

'69 ELDORADO, some body damage, \$300. Zownir, 256-3753 or 256-3717.

WOMEN'S SCHWINN BICYCLE, 3-spd., \$65. Russell, 298-4949.

'75 MERCEDES BENZ 280, 4-dr. sedan, full power, \$6200. Bottomly, 344-2137.

'74 PLYMOUTH VALIANT, PS, PB, AC, AT, AM/FM cassette, steel radials, new vinyl top, \$650 OBO. Patrick, 265-4569.

'71 CHEV. MALIBU, 350 engine, chrome mag wheels, negotiable. McCain, 255-0598.

AIRSTREAM TRAVEL TRAILER, 20', fully self-contained. Kissam, 881-2895.

'79 BUICK ELECTRA, 4-dr., all power, new tires, one owner, \$2800. Campo, 299-2570.

'76 CHEV MMH, 23', 49K miles, tilt, cruise, dual gas tanks, new tires, \$10,400. McConahy, 884-5071.

'81 TOYOTA TERCEL front-wheel drive liftback, AT, AC, AM/FM, 52K miles, below book, \$3000. Pendall, 265-3008.

'81 CHEV. CITATION, one owner, V-6, needs transmission work, \$1200. Schroeder, 296-1011.

CUSTOM MOTORCYCLE, titanium frame, '71 Triumph 650-cc, lengthy storage, bike show winner, \$1500 as is. Sanders, 823-2521.

'75 PLYMOUTH DUSTER, PS, PB, AT, AC, 65K miles, \$850. Koone, 881-2646.

'85 PLYMOUTH TURISMO, 18K miles, needs body work, \$3500 OBO. Loubriel, 268-1341.

CAMPER, '76 Apache Ramada, fold-down, sleeps 8, furnace, stove, refrigerator, awning, \$3000. McCutcheon, 298-7740.

'82 MERCURY ZEPHYR, 4-dr., AC, cruise, AM/FM tape, 56K miles. Dillon, 265-3440.

'72 CHEV. C-10 pickup, stepside, LWB, 350 V-8, 4-spd., 84K miles; Starcraft tent trailer, sleeps 8, stove, icebox, extras. Parrish, 299-2043.

'85 HONDA XR350, no racing, \$1295. Turner, 293-8938.

BICYCLE, men's 10-spd., \$50; 3-spd., \$35, both \$75. Joseph, 299-6989.

TREK 560 BICYCLES, new Reynolds 501 tubing, \$325; Schwinn 10-spd., wide seat, upright handlebars; women's Royce Union 3-spd. Loucks, 281-9608.

'73 OLDS DELTA-88, AT, PS, AC, radio, heater, two spares, 79K miles, one owner, \$995. Glass, 884-4415.

'81 YAMAHA SR250 w/trunk, fairing, shop manual, adult-ridden, 60 mpg, \$300. Hass, 299-3506.

'83 FORD pickup F-150, 44K miles. Medina, 299-8475 evenings.

'80 BUICK SKYLARK 4-dr. LTD, 4-cyl., AT, AC, PS, tilt, reclining seats, cruise, AM/FM cassette, original owner, \$2500. Luikens, 881-1382.

'81 DATSUN 200SX hatchback, AC, \$2995. Straub, 298-9270 after 5.

'81 BUICK SKYLARK, 40K miles on rebuilt engine, transmission, all power, AM/FM cassette, \$2000. Warner, 294-2639.

'81 FORD GRANADA, 4-dr., brown, new steel radials, original owner, \$2400. Martinez, 821-8110 or 822-0744 after 5.

SCHWINN VARSITY 12-spd. bicycle

w/fenders and some spare parts, \$30 OBO. Drury, 293-1929.

'78 BONNEVILLE, 4-dr., white, power seat, cruise, cassette, 71K miles, \$2400. Hayes, 883-9276.

BICYCLE, men's 10-spd., \$50. Ystesund, 293-7634.

'77 CADILLAC FLEETWOOD, 61K actual miles, all amenities. Campbell, 275-0789.

'68 JEEP WAGONEER, 4-WD, Buick 350 V-8 auto transmission, original owner, extra parts included, AM/FM cassette, Warn hubs, \$1750. Hochrein, 299-5225.

'76 FIAT X1/9, 80K miles, \$1600. Schultz, 299-0924.

'69 FORD GALAXY convertible. Wagner, 822-1031.

REAL ESTATE

3-BDR. TOWNHOUSE, 2 baths, double garage, assumable 9-1/2% FHA loan. Campbell, 275-0789.

3-BDR. MOBILE HOME, 2 baths, Conchas Dam, 125' x 100' lot; 17-ft. boat; 10 x 10 shed; gas tanks, propane. Harris, 1-868-2276 or 255-6577.

TWO-BDR. PATIO HOME, 2 baths, Sandia Heights, 1500 sq. ft., 2 years old, mountain and city views, \$98,500. Williams, 292-1210.

3-BDR. MOBILE HOME, 1-1/2 baths, furnished, Las Cruces, one mile from NMSU. Kracko, 299-1030.

CUSTOM 4-BDR. HOME, 2700 sq. ft., passive solar, green house, sunken LR, on 1-1/4 acres, off Highway 47. Akhil, 865-7292.

4-BDR. HOME on 3/4 acre in Rio Rancho, newly redecorated, fully carpeted, \$72,000. Brandon, 892-0449.

3-BDR. HOME, NE, one bath, 1300 sq. ft., completely fenced yards, one-car garage, \$69,500. Heintzleman, 884-6552.

160 ACRES, underground irrigation w/ 2100 GPM well, fenced into 16 permanent pastures, 3-bdr. home, \$162,000. Hayes, 281-9282.

3-BDR. CANDLELIGHT HOME w/study, remodeled, tile, auto. sprinklers, new kitchen counters, La Cueva District, near Sandia bus, less than appraisal. Carrigan, 821-5856.

2-BDR. INMAN TOWNHOME, 2 baths, clerestory windows, LR, DR, loft/study, skylights, 5 years old, 2100 sq. ft., double garage, near San Mateo/Lomas. Reinarts, 884-7106 or 256-9542.

10-25 ACRES in mountains north of I-40, 15 miles from SNL, pine covered, road, good water, \$7-10,000/acre negotiable. Sanders, 823-2521.

2-BDR. HISTORIC HOME in Nob Hill area, completely updated, landscaped and fenced yards, priced at appraisal. Brooks, 265-8612.

WANTED

HOUSE SITTER, WEEKDAYS (9 a.m. to 4 p.m.) for home in North Valley for approximately 1 to 2 months, salary negotiable. Hunter, 345-7008 after 5.

ROOMMATE to share townhouse, non-smoker preferred, \$300/mo. and 1/2 utilities. Dubs, 828-0630 after 5.

SWIM FINS, snorkel equipment. Hansche, 281-5623.

USED SWING SET in good condition; used two-seated baby stroller in good condition. Morrison, 299-4757.

MALE SAILOR, non-smoker, 20s-30s, to sail with group of 7 on chartered yacht, U.S. and British Virgin Islands. Hinkel, 298-8226.

POOL TABLE, slate bed, 7' size, to rent or buy. Blewer, 268-9019.

SLIDE CUBES for discontinued Bell & Howell cube slide projector. Krukar, 292-3917.

TO BORROW, VHS tape of PBS series, "Eyes on the Prize." Finger, 345-6865.

STEP LADDER, extension ladder, lawn mower, hose, sprinkler. Robinson, 293-7231.

CAMPER SHELL, to fit longbed Chev. S-10. Smith, 892-2516.

Cinco de Mayo Fiesta — Better Check the Calendar

SO YOU THINK Cinco de Mayo is May 5? Well, guess again. The folks at the C-Club are pulling a fast one on you this year. A big fiesta in honor of the occasion is set for Friday, May 8 — and what a celebration! Start out with the two-for-one dinner special, with a couple of elegant menu selections: prime rib and scallops (your choice of two entrees, \$14.95). Watch a first-class floor show from 8 to 8:30 p.m., featuring Las Tapatias Dance Company. Mostly native New Mexicans, this colorfully costumed troupe specializes in Spanish, Latin, and Mexican numbers. Rounding out the evening (from 8:30 to 12:30), the Freddie Chavez Foundation plays its special brand of Latin music for your cha-cha pleasure. This one is always SRO, so make your reservation soon (265-6791).

HAVE YOURSELF A BLAST tonight, as Leto and the Spectrum Band make the happy music right after dinner, which features T-bone steak (\$6.95) or fried fish (\$5.95). Spectrum plays variety music from 8 p.m. to midnight, and is ready, willing, and able to play your favorite number. Dinner reservations requested, please.

VCPs, Continued . . .

If you still need ideas on what to do with that VCP distribution, there's no lack of opportunity to soak up some information during the next couple of weeks. Local brokerage houses and financial planning firms will present seminars (all in the Eldorado room) covering tax effects of the distribution, IRA rollovers, investment options, and tax reform impacts. Here's the schedule:

- April 27 - Andy Roerick & Associates (Andy Roerick, Fenton Katz, and Lou Spring), 4:30-5:35 p.m.
- April 29 - Burt, Wright, & Co.; Financial Investment Corp. (Roger Nagel and Guy Trujillo), 5 p.m.
- April 30 - New York Life Insurance Co. (Fred Lancaster), 5-6:30 p.m.
- May 4 - A. G. Edwards & Sons, Inc. (Findlay Edwards and Christie Harper), 5-5:45 p.m.
- May 5 - First Investors (Janis Thompson), 5 p.m.
- May 6 - Dean Witter Reynolds, Inc. (Michael DeVincentis), 5-6:30 p.m.
- May 7 - State Farm Insurance (Reggie Gallegos), 4:30 p.m.

GETTING READY FOR VEGAS is what it's all about. Those T-Bird card sharks won't admit it, but we all know it's true. The next shuffle-and-deal session is next Thursday, April 30 — and mark your calendars for the May get-togethers on the 14th and 28th. The wheeling and dealing always starts at 10:30 a.m.; along with the gaming, count on good conversation and a bunch of munchies.

WHOO IT UP at Western Night next Friday evening, May 1. Filet mignon and shrimp are the two-for-one chuck wagon selections, and those famous Isleta Poor Boys (who else?) play their popular sagebrush-shuffle tunes from 8:30 p.m. to 12:30 a.m. Take advantage of the free country/western dance lessons from 7:30 to 8:30, so you'll have the fastest two left feet in the West. Call 265-6791 for chuck wagon reservations.

ANY EXCUSE FOR A PARTY is what the Coronado Wolfpack is after. And this intrepid band of Lobo fans has found yet another (excuse, that is). They're warming up for next fall on Saturday, May 2, with a dry-run tailgate party before the Cherry-Silver football game that day. The action starts at 2

p.m. in the west University Stadium parking lot (south end). For free you get Jerry's (who he?) famous chileburgers, beer, wine, and soft drinks. No admission charge, but bring a potluck dish, place settings, chairs, and — of course — a big appetite. Look for the Wolfpack banner!

SPLASH OPPORTUNITIES are right around the corner. Sign up for either swimming lessons or membership in the Coronado Aquatic Club on Saturday, May 2, from 9 a.m. to noon in the ballroom. Members' kids, ages 4 through 18, are eligible for CAC membership if they can swim the length of the pool. A whole lot of fun, with a little competition thrown in.

ROB THE RICH, help the poor: That's Robin Hood's motto. RH and his friends — Maid Marian and Little John — cavort across the silver screen at Family Night on Saturday, May 9. Fill up on a low-cost buffet (5 p.m.) featuring family-pleasin' food: hamburgers, hot dogs, and pizza. As usual, the movie, which starts at 6, is free; soft drinks and popcorn available for a quarter.

M IS FOR MAMA MIA — and on Mother's Day, May 10, the Club presents a special buffet for a special day. The mouth-watering menu, served from 10 a.m. to 3 p.m., includes Virginia baked ham with cherry sauce, baron of beef, carved turkey with giblet gravy, fried chicken, green beans almondine, potatoes au gratin, western omelets (different from the eastern kind), scrambled eggs, hash browns, bacon, green chile salsa, French rolls, pancakes, cheese tray, fresh fruit salad, chilled juices, vegetable tray, tossed salad, and a medley of desserts to top the whole thing off. Throw in a complimentary glass of champagne for everybody, plus a carnation for Mom. It's the best deal in town at very reasonable prices: adults, \$10.50; children ages 5-12, \$5.75; and tots 4 and under, free. Space fills up fast on this very important day, so take a minute or two to call in that reservation right now.

A TAXING SITUATION: Thunderbirds can avoid one by showing up for a program on 1987 tax changes presented by the H&R Block people at 1 p.m. on Monday, May 11, at the south end of the ballroom. Make a day of it with lunch beforehand (noonish, suggests honcho Charlie Kaspar) and the T-Bird Board meeting afterward.

The very next day (May 12), T-Birds meet for lunch at 11:30 a.m. at L'Parc (old Roxy, 9500 Montgomery NE), and follow up with a tour of the Albuquerque Museum at 2 p.m. Make your reservation by May 7 by calling Dorcas Entley, 299-7995, or Charlie Clendenin, 299-2071.

A MONTH-LONG OPEN HOUSE? That's exactly what's happening at the C-Club during the

merry month of May. Here's a chance for non-member Sandians and DOEans to check out the place, says Manager Sal Salas. Enjoy the two-for-one special dinners, great dance bands, Mother's Day brunch, Family Night — whatever's coming up — at the same reasonable prices members now enjoy. You're also invited to a special open house on Friday, May 15, from 4:30 to 6:30 p.m. on the patio. Tour the pool/patio area, with free soft drinks, beer, and munchies in hand. If you join the Club that night, you get quite a deal: a \$5 discount on a one-year C-Club membership *and*, if you purchase a pool/patio pass, another \$5 off. Bargain hunters, unite!

SOME ENCHANTED EVENING you'll find yourself in some faraway place if you sign up for some of the travel adventures put together by the C-Club Travel Committee. Start planning that vacation right now.

Hard-Hat Country — Only while you're visiting Meteor Crater. The rest of the time in Arizona (May 9-12), you can wear a cowboy hat. This one takes you to Flagstaff, Prescott, and Sedona, with lots of sightseeing along the way. Side trips include the Painted Desert and Petrified Forest, Fort Verde State Park, Montezuma Castle National Monument, and Holy Cross Chapel. You can't miss beautiful Oak Creek Canyon, either, because it's between Flagstaff and Sedona. For \$170/person, you get three nights' lodging, RT bus fare, and snacks and drinks along the way. Better hurry on the sign-up; the stagecoach leaves in a couple of weeks.

Mining Country — And much more, when you head for Colorado on this five-day trip, June 3-7. It includes stops in Alamosa (where you'll eat lunch on the bank of the Rio Grande), Leadville and Central City (that's where the mining comes in), Golden (Coors Brewery), Denver (museums and the Mint), and Colorado Springs (Air Force Academy and more). The \$248/person tab covers four nights' lodging, admission fees, and a dinner show at the Flying W BBQ in Colo. Springs.

Gold-Rush Country — This once-in-a-lifetime adventure in Alaska — land/cruise or cruise-only — is something you'll talk about for years to come. The land/cruise package (Sept. 8-20) covers city tours of Anchorage and Fairbanks, a visit to Mt. McKinley National Park, and an inland stern-wheeler cruise as part of your stay in Fairbanks. Cruise-only folks join the rest of the people on Sept. 13 for a week-long cruise along the Alaskan coast aboard the luxurious *Regent Sea*. Cost of the land/cruise option is \$2325/person (double); for cruise-only types it's \$1642. Share a room with a few more people, and get a price break. Included in the cost are all transportation fees (land/sea/air), lodging along the way, all meals aboard the *Regent Sea*, and taxes/tips. Final payment due on July 20.



LATIN MUSIC LOVERS recognize this smiling group as the Freddie Chavez Foundation; they'll play music to get you in the mambo mood at the Cinco de Mayo fiesta on May 8. Don't miss the celebration, which includes great food and a first-class floor show by Las Tapatias Dance Company.